

## CYST NEMATODES OF THE GENUS: *HETERODERA*

Cyst nematodes are a group of root feeding plant parasitic nematodes that infect many important food crops worldwide. Losses can be dramatic under high populations. The nematode group is named from the adult female that dies and whose body then hardens and forms a cyst around the eggs. This cyst structure protects eggs containing juveniles from extreme weather conditions and also reduces the efficacy of nematicides.

Nematodes especially cyst genera, can be readily transported long distances by man through seed when soil peds are present and the movement of equipment by operations in the military, farming, or construction. Natural movement is limited primarily to weather related events such as high winds or flooding. The nematodes move little in soil by their own mechanism and must depend on indirect activities to spread from one area to another.

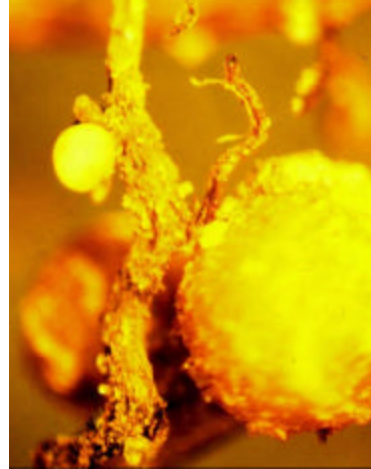


Figure 1. Soybean cyst (left) on root. T. Todd, KSU.

In Kansas, the only cyst problem of major importance has been the soybean cyst nematode, *Heterodera glycines*. The nematode was first found in Doniphan County in extreme northeast Kansas in 1985. This was shortly after quarantine was revoked by the Kansas Department of Agriculture. Subsequently, the nematode was found in several counties along the Missouri river in northeast Kansas in 1986. In the early 1990's SCN was reported in southeast Kansas counties and in the late 1990's in south central Kansas. Today (see map) the soybean cyst nematode is present across much of eastern and south central Kansas. The nematode likely entered Kansas from Missouri on soil contaminated seed and farming machinery. The nematode has spread into new areas of the state via the same means. Growers must either plant resistant varieties or rotate crops frequently to manage the nematode when present to avoid substantial losses. The nematode will continue to spread into new fields and counties in future years as the nematode range expands to include all of Kansas.

Wheat production in the state faces two new pests of cyst nematode. *Heterodera avenae* (cereal cyst nematode) and *H. latipons* (Mediterranean cereal cyst nematode), are two potentially serious pests that could harm Kansas agriculture. The cereal cyst nematode currently is present in the Pacific Northwest in such states as Oregon, Idaho, and Washington. It is also worldwide in distribution. The Mediterranean cereal cyst nematode occurs mostly in Africa, Asia, and northern Europe. Pathways into the state of the two nematodes include contaminated seed or animal feed, farm machinery, pipeline construction equipment, earth moving equipment, and other soil bearing items. Future surveys are planned to ascertain the presence of the nematodes in the state.

Other crops in the state with potential cyst nematode problems include corn and potato.